

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 7 of 15

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 49 (cancelled)

Claim 50 (currently amended) A charging circuit for controlling a charging parameter provided to a rechargeable battery, said charging circuit comprising:

a first path configured to monitor a battery charging current provided to said battery;

a second path configured to monitor a battery charging voltage provided to said battery;

and

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; The charging circuit of claim 47, wherein said first path comprises a first amplifier configured to receive a first monitoring signal representative of said battery charging current and a first comparison signal representative of said battery charging current threshold, and to provide a first control signal to said regulating circuit based on a difference between said first monitoring signal and said first comparison signal.

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 8 of 15

Claim 51 (currently amended) The charging circuit of claim [[47]] 50, wherein said first control signal has a nonzero value if said first monitoring signal exceeds said first comparison signal.

Claim 52 (currently amended): A charging circuit for controlling a charging parameter provided to a rechargeable battery, said charging circuit comprising:

a first path configured to monitor a battery charging current provided to said battery;

a second path configured to monitor a battery charging voltage provided to said battery;

and

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; The charging circuit of claim 47, wherein said second path comprises a second amplifier configured to receive a second monitoring signal representative of said battery charging voltage and a second comparison signal representative of said battery voltage threshold, and to provide a second control signal to said regulating circuit based on a difference between said second monitoring signal and said second comparison signal.

Claim 53 (previously presented): The charging circuit of claim 52, wherein said second control signal has a nonzero value if said second monitoring signal exceeds said second comparison signal.

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 9 of 15

Claim 54 (currently amended): A charging circuit for controlling a charging parameter provided to a rechargeable battery, said charging circuit comprising:

a first path configured to monitor a battery charging current provided to said battery;

a second path configured to monitor a battery charging voltage provided to said battery;

and

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; The charging circuit of claim 47, wherein said regulating circuit comprises a comparator configured to provide a PWM control signal to control said charging parameter, said comparator reducing a duty cycle of said PWM control signal if said battery charging current exceeds a battery charging current threshold.

Claim 55 (previously presented): The charging circuit of claim 54, wherein said comparator reduces said duty cycle of said PWM control signal if said battery charging voltage exceeds a battery voltage threshold.

Claims 56 – 60 (cancelled)

Claim 61 (currently amended): An electronic device that may be powered by a DC power source or a rechargeable battery, said electronic device comprising:

a DC to DC converter configured to provide a charging parameter to said battery;

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 10 of 15

a charging circuit configured to control said charging parameter, said charging circuit comprising:

a first path configured to monitor a battery charging current provided to said battery;

a second path configured to monitor a battery charging voltage provided to said battery;

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; and
The electronic device of claim 59,

wherein said charging circuit further comprises:

a third path configured to monitor a supply current provided to said battery and to system circuitry of said electronic device, wherein said regulating circuit is further configured to reduce said charging parameter provided to said battery if said supply current exceeds a supply current threshold.

Claim 62 (currently amended): An electronic device that may be powered by a DC power source or a rechargeable battery, said electronic device comprising:

a DC to DC converter configured to provide a charging parameter to said battery;

a charging circuit configured to control said charging parameter, said charging circuit comprising:

a first path configured to monitor a battery charging current provided to said battery;

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 11 of 15

a second path configured to monitor a battery charging voltage provided to said battery; and

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; The electronic device of claim 59, wherein said first path comprises a first amplifier configured to receive a first monitoring signal representative of said battery charging current and a first comparison signal representative of said battery charging current threshold, and to provide a first control signal to said regulating circuit based on a difference between said first monitoring signal and said first comparison signal.

Claim 63 (previously presented): The electronic device of claim 62, wherein said first control signal has a nonzero value if said first monitoring signal exceeds said first comparison signal.

Claim 64 (previously presented): The electronic device of claim 62, wherein said first monitoring signal is based on a voltage drop across a sense resistor, said sense resistor coupled to an output terminal of said DC to DC converter.

Claim 65 (currently amended): An electronic device that may be powered by a DC power source or a rechargeable battery, said electronic device comprising:

a DC to DC converter configured to provide a charging parameter to said battery;
a charging circuit configured to control said charging parameter, said charging circuit comprising:

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 12 of 15

a first path configured to monitor a battery charging current provided to said battery;

a second path configured to monitor a battery charging voltage provided to said battery; and

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; The electronic device of claim 59, wherein said second path comprises a second amplifier configured to receive a second monitoring signal representative of said battery charging voltage and a second comparison signal representative of said battery voltage threshold, and to provide a second control signal to said regulating circuit based on a difference between said second monitoring signal and said second comparison signal.

Claim 66 (previously presented): The electronic device of claim 65, wherein said second control signal has a nonzero value if said second monitoring signal exceeds said second comparison signal.

Claim 67 (currently amended): An electronic device that may be powered by a DC power source or a rechargeable battery, said electronic device comprising:

a DC to DC converter configured to provide a charging parameter to said battery;

a charging circuit configured to control said charging parameter, said charging circuit comprising:

Amendment A
USSN 10/618,901
September 23, 2004
Reply to Office Action of June 28, 2004
Page 13 of 15

a first path configured to monitor a battery charging current provided to said battery;

a second path configured to monitor a battery charging voltage provided to said battery; and

a regulating circuit configured to reduce said charging parameter provided to said battery if said battery charging current exceeds a battery charging current threshold; The electronic device of claim 59, wherein said regulating circuit comprises a comparator configured to provide a PWM control signal to said DC to DC converter to control said charging parameter, said comparator reducing a duty cycle of said PWM control signal if said battery charging current exceeds a battery charging current threshold.

Claim 68 (previously presented): The electronic device of claim 67, wherein said comparator reduces said duty cycle of said PWM control signal if said battery charging voltage exceeds a battery voltage threshold.